

## CIS 422/522 – Software Methodology I

### Midterm Review Questions

Class lectures have attempted to address the following questions. Ideally, you should be able to answer these from the slides, lectures, and class discussion. Please bring any questions to class for the review.

1. What are the purposes of software engineering?
  - a. What is managerial control? How could you distinguish successful managerial control?
  - b. What is intellectual control? How could you distinguish successful intellectual control?
  - c. Why are both important to a successful software development effort?
2. What are the key skills and attitudes supporting a successful development team?
  - a. Why are people skills and teamwork skills important for a software developer?
  - b. What are the most important attributes of a good team member?
  - c. What are different approaches to structuring teams?
  - d. How should peer teams arrive at decisions?
3. What purposes do software processes serve in guiding software development?
  - a. What is meant by a “software life-cycle?”
  - b. What do we mean by “software process” in the class context?
  - c. What are the distinguishing characteristics of the different software process models described in class?
  - d. Why do people use so many different kinds of processes?
  - e. What considerations should guide developers in choosing a software process (assuming that they have a choice)? For example, under what circumstance would a Scrum process make sense? Spiral process? Etc.
4. How are different project management tools used to exert managerial control?
  - a. What is the purpose of a Work Breakdown Structure?
  - b. What is the purpose of a PERT chart?
  - c. What is the purpose of a Gantt chart?
5. What is a “software requirement?”
  - a. Why is it important to get the requirements right, preferable as early as possible? Why is it usually not possible to get the requirements exactly right (especially early in the process)?
  - b. What are the primary goals of the requirements activities?
  - c. What are the risks (difficulties) in achieving the requirements activity goals?
  - d. What would be the benefit of having different versions of the requirements written in different languages? What would be the drawbacks?
  - e. Who are the audiences for the ConOps (as describe in class) and for what purposes would they use the document?

- f. Who are the audiences for the SRS and for what purposes would they use the document?
  - g. What kinds of specification methods are appropriate to each of the documents (ConOps and SRS)?
  - h. What is a Use Case?
  - i. How would you write a use case to describe the following kind of requirement...?
  - j. What is the difference between Behavioral Requirements and Developmental Quality Requirements?
  - k. What does it mean for a requirement to be “testable” (equivalently, “verifiable”)? Can you write a testable quality requirement?
6. What does it mean to “be in control” of any real development?
- a. Why do we need a “feedback control loop?”
  - b. What is the role of a plan in maintaining control?
  - c. Why do we use feedback for?